

SUPPLEMENTARY MATERIAL

Biodiesel, a sustainable oil, in high temperature stable microemulsions containing a room temperature ionic liquid as polar phase

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Density measurements

For the estimation of the volume fraction of the dispersed phase, ϕ , densities, ρ , of biodiesel were measured with a pycnometer within a temperature range between 25°C and 150°C \pm 0.1 °C in steps of 10 °C. Densities of biodiesel are shown in Fig. S1, a linear temperature density relationship could be observed yielding

$$\rho_{\text{biodiesel}} / \text{g cm}^{-3} = 0.8937 - 0.0007 \theta / ^\circ\text{C}$$

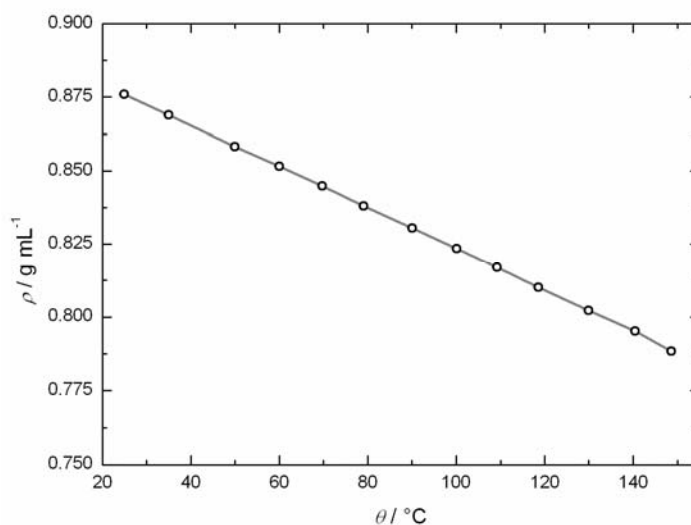


Fig. S1. Densities, ρ , of biodiesel within a temperature range between 25 °C and 150 °C, the full line represents a linear fit.

Temperature dependent densities of EAN, and of the [C₁₆mim][Cl]+decanol mixture (1:4, molar ratio) 30 °C and 150 °C have been reported in literature, the following linear density-temperature relationships have been described:¹

$$\rho_{\text{EAN}} / \text{gcm}^{-3} = 1.223 - 0.00055 \theta / ^\circ\text{C}$$

$$\rho_{[\text{C}_{16}\text{mim}][\text{Cl}]+\text{decanol}} / \text{gcm}^{-3} = 0.884 - 0.00063 \theta / ^\circ\text{C}$$

References

- 1 O. Zech, S. Thomaier, A. Kolodziejski, D. Touraud, I. Grillo, W. Kunz, W. *Chem. Eur. J.*, in press.